

# NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

August 24, 2010

# Precipitation and Snowpack

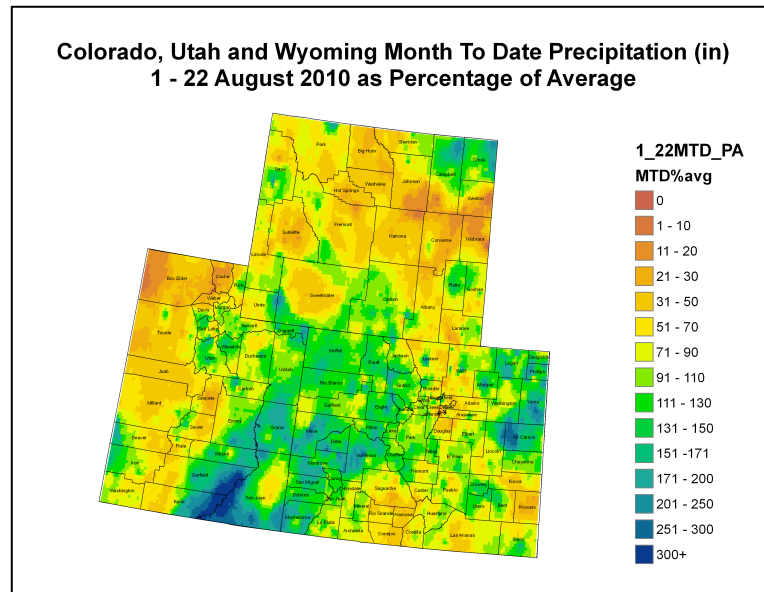


Fig. 1: August month-to-date precip as percent of average

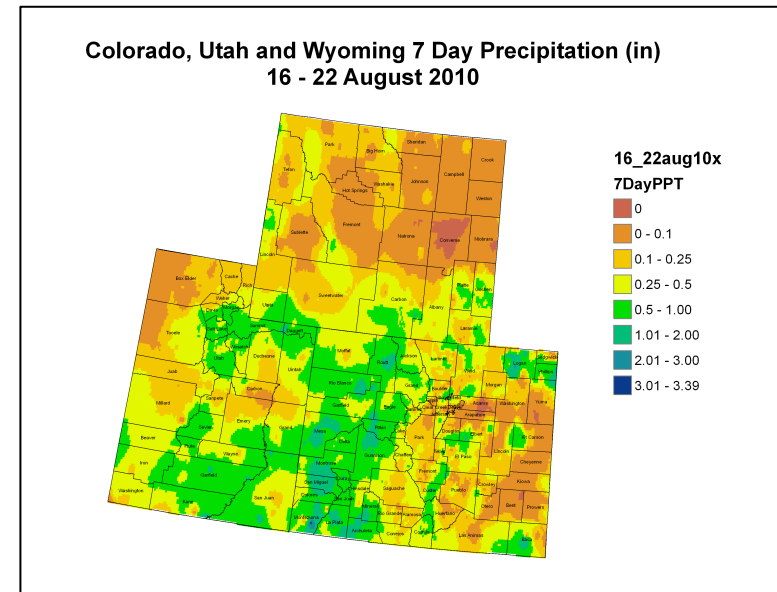


Fig. 2: August 16 – 22 precipitation in inches

Most of the Upper Colorado River Basin has received near or above average amounts of precipitation so far for the month of August (Fig. 1). This is especially evident in the southern portion of the basin, which continued to benefit from the monsoonal flow and subtropical moisture that has persisted in the area for most of the month. The driest region for the month has been in the northern part of the basin, in southwest Wyoming, which has experienced around 50% of average precipitation or less.

A similar pattern can be seen for last week's precipitation (Fig. 2), with the heaviest amounts of precipitation falling along western Colorado, and very little precipitation seen in Sweetwater and Sublette counties in Wyoming. Parts of the Lower Green River basin only saw small amounts of precipitation last week as well.

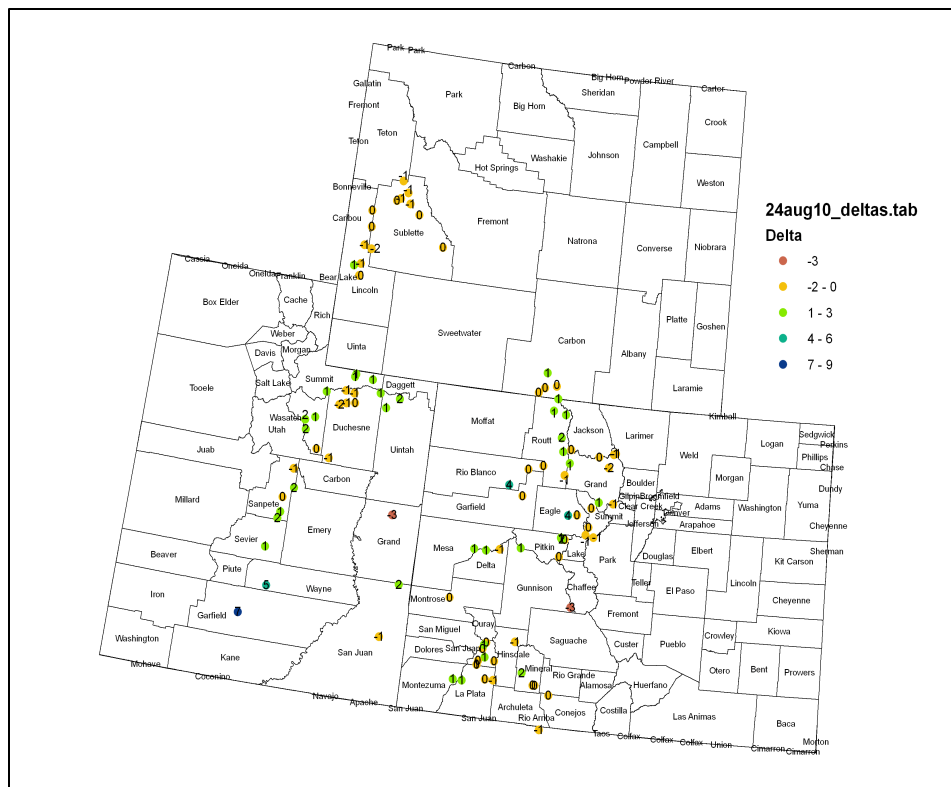


Fig. 3: Snotel WYTD precipitation percent of average change from last week.

Last week's precipitation deficits can be seen when looking at the one week change in water-year-to-date (WYTD) precipitation percent of average at Snotel sites around the basin (Fig. 3). Duchesne County, UT and Sublette County, WY saw 1% decreases from last week. Northeastern Utah and Routt County, CO saw 1% increases in WYTD percents of average, with most of the rest of the UCRB showing no changes or only localized changes.

Matching with the short term dryness, and longer term deficits, Duchesne County, UT and Sublette County, WY continue to show WYTD precipitation percentiles well below 30% (a D0 designation on the U.S. Drought Monitor map) (Fig. 4). Aside from a few low percentiles around Summit County, CO, the rest of the UCRB shows percentiles high enough to not be considered for drought designations.

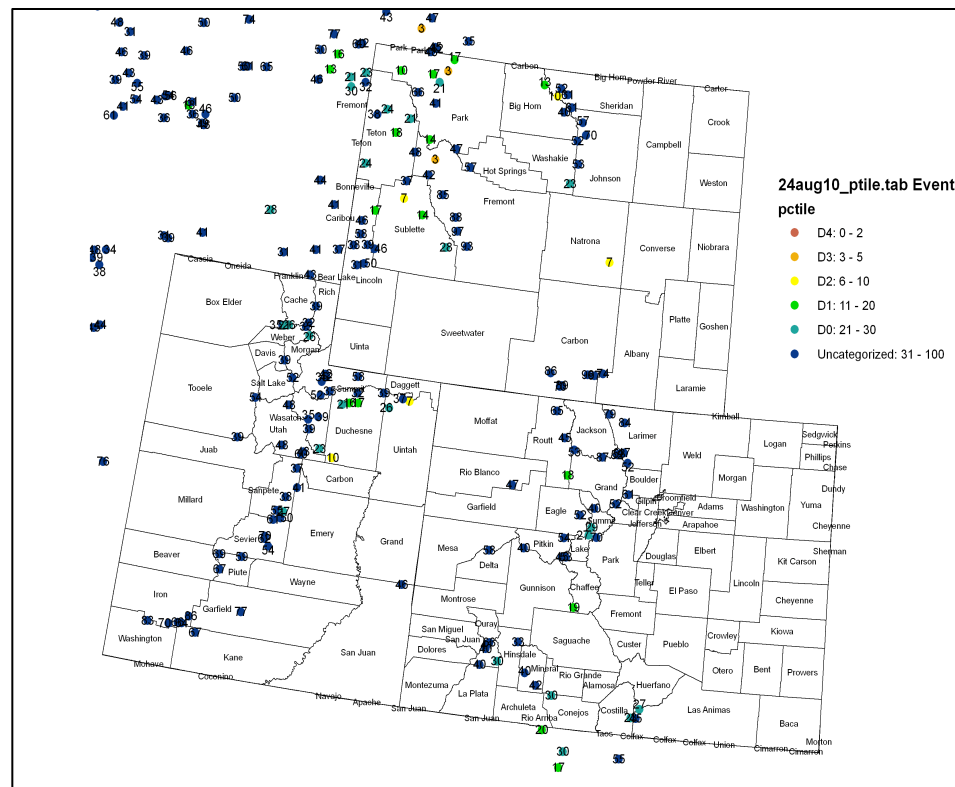
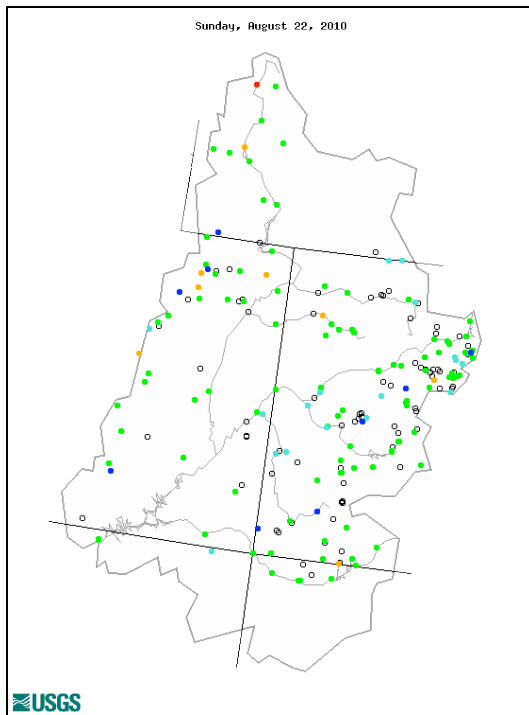


Fig. 4: Snotel WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

# Streamflow

Over 90% of the USGS streamgages in the UCRB are still reporting normal (in the 25 – 75<sup>th</sup> percentile range) or above 7-day average flows as of August 22 (Fig. 5). The majority of streamgages reporting below normal flows are in the Upper and Lower Green River basins in Wyoming and Utah.

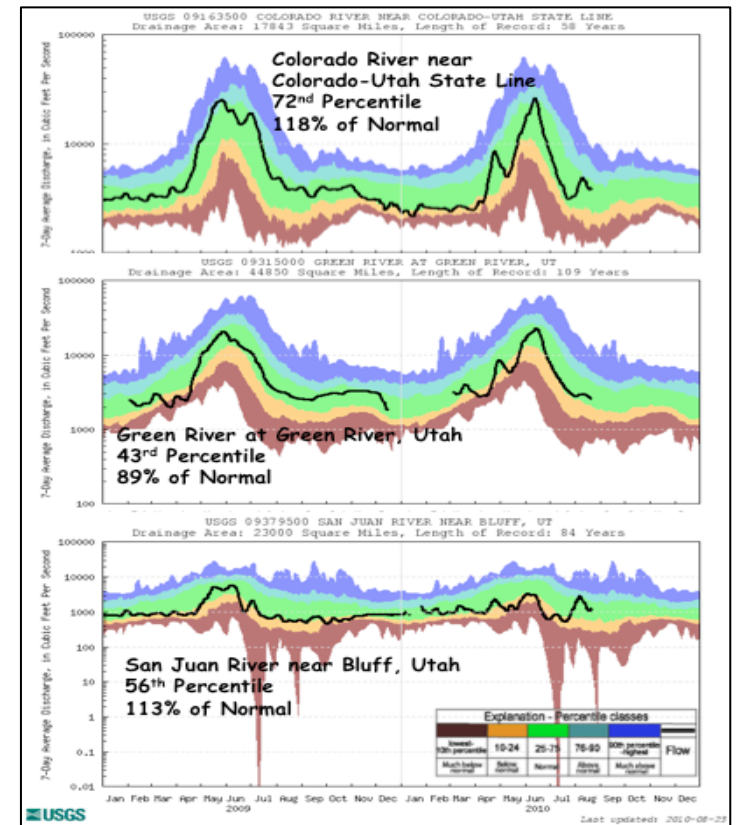
After a bump in streamflows in late July and early August (the result of continuous monsoonal moisture), flows appear to be slowing and again returning toward base flows (Fig. 6). Both the Colorado River near the CO-UT border and the San Juan River near Bluff, UT show secondary peaks in streamflows in early August, helping both increase to over 100% of normal for 7-day average discharge. The gage on the Green River at Green River, UT shows only a minor increase around the same period, as this region did not benefit as much from the monsoon.



| Explanation - Percentile classes |                   |              |        |              |                   |      |            |
|----------------------------------|-------------------|--------------|--------|--------------|-------------------|------|------------|
| Low                              | <10               | 10-24        | 25-75  | 76-90        | >90               | High | Not-ranked |
|                                  | Much below normal | Below normal | Normal | Above normal | Much above normal |      |            |

Fig. 5: USGS 7-day average streamflow compared to historical streamflow for August 16<sup>th</sup> in the UCRB.

Fig. 6: USGS 7-day average discharge over time at the CO-UT state line (top), Green River, UT (middle), and Bluff, UT (bottom).



## Water Supply and Demand

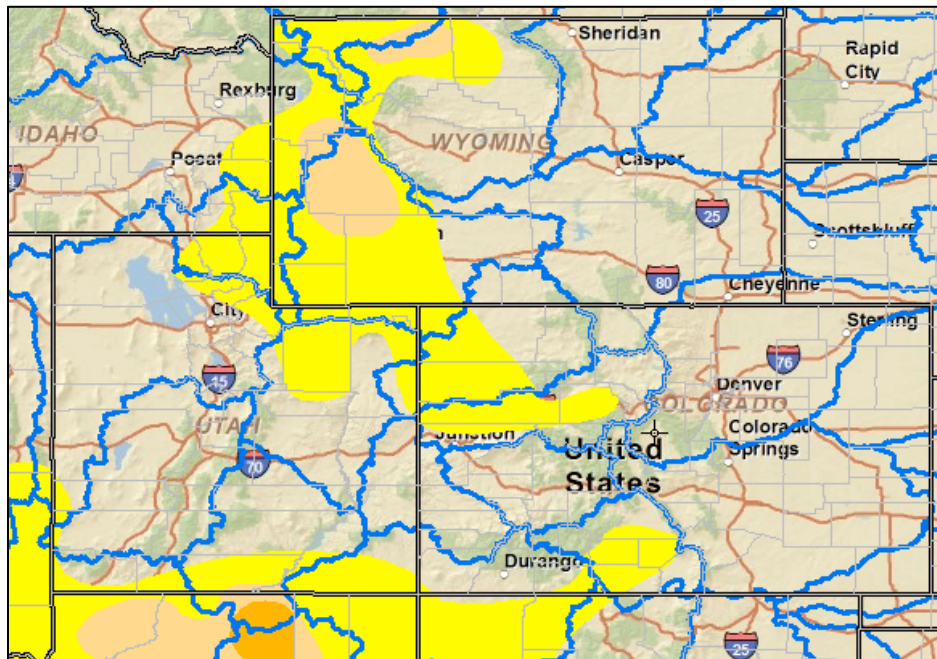
Warmer than average temperatures prevailed over the eastern plains and the northern portion of the UCRB last week, with cooler than average temperatures over eastern Utah. Soil moisture is in good condition throughout the basin and surrounding areas for this time of year, with the four-corners region seeing a big improvement in soil moisture over the past month.

Still in the peak of demand season, all of the major reservoirs in the UCRB experienced decreases in storage levels from last week. Flaming Gorge and McPhee are still above average for this time of year, as are Lakes Granby and Dillon which both remain near capacity. Blue Mesa Reservoir is slightly below average. Lake Powell remains around 76% of average, 64% of capacity, and though slightly lower than last year at this time, levels have been steadily increasing ever since dropping in 2002.

## Precipitation Forecast

The greater Upper Colorado River Basin will remain mostly dry through mid-week due to an area of high pressure over the four corners. By Thursday a developing trough in the Pacific northwest will begin to shift the high slowly eastward allowing sub-tropical moisture to again make its way into the UCRB, with southern areas seeing the most activity. Even though this moisture surge does not appear to be very deep, the presence of the energetic trough to the west could be enough to produce measurable rainfall instead of high based, dry storms. QPF fields for Friday/Saturday show a north south oriented swath of precipitation centered roughly over the Colorado/Utah border, but with amounts generally under 0.50 inches. For this weekend the entire pattern continues to shift eastward with the main moisture plume moving over south central Colorado. This will result in dryer conditions for the northwestern portion of the basin, while the San Juans and central Colorado mountains will continue to see a chance of showers through early next week.

# Drought and Water Discussion



|                       |               |
|-----------------------|---------------|
| Drought – Exceptional | 0 to 2 (D4)   |
| Drought – Extreme     | 2 to 5 (D3)   |
| Drought – Severe      | 5 to 10 (D2)  |
| Drought – Moderate    | 10 to 20 (D1) |
| Abnormally Dry        | 20 to 30 (D0) |

Drought categories and their associated percentiles

Fig. 7: August 17 release of U.S. Drought Monitor for the UCRB

No local experts have given any suggestions for changes to the current U.S. Drought Monitor map (Fig. 7). The D0 currently seen in the UCRB is correlated with the locations of the Snotel sites with the lowest WYTD precipitation percentiles. None of the UCRB shows any short-term indicators of dryness according to the SPI, though most of the areas in D0 do show lower SPI values when evaluating longer-term (e.g. 12 – 24 month). The D0 areas in Wyoming and Utah are also correlated with lower streamflows, and drier conditions on the most recent VegDRI map match well with all of the D0 areas in the UCRB.

As of this time, status quo is recommended for the region.